

FIRST ACADEMIC PERIOD

ANATOMY EXAMINATION

November 19, 1985

DIRECTIONS: Answer the following questions by using the key outlined below.

Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

1. Select the correct statement(s).

1. The musculocutaneous nerve terminates as the posterior antebrachial cutaneous nerve
2. The cephalic vein lies in the lateral intermuscular septum of the arm
3. The long head of the triceps brachii muscle originates from the supra-glenoid tubercle of the scapula
4. The intercostobrachialis nerve usually unites with the medial brachial cutaneous nerve

2. Select the correct statement(s).

1. The median nerve is located in the midpalmar compartment of the hand
2. There are two proper palmar digital nerves and two proper dorsal digital nerves which innervate each finger
3. The thenar compartment contains the flexor pollicis brevis, abductor pollicis brevis and opponens pollicis
4. The carpal tunnel contains the tendons of the flexor carpi radialis and the tendons of the flexor digitorum superficialis and profundus

3. Select the correct statement(s).

1. The median nerve lies lateral to the tendon of the flexor carpi radialis at the wrist
2. The anterior interosseous nerve lies between the flexor pollicis longus and flexor digitorum profundus on the interosseous membrane in the distal half of the forearm
3. The superficial branch of the radial nerve lies deep to the flexor carpi radialis in the distal forearm
4. The deep branch of the radial nerve pierces between the two heads of the supinator muscle to enter the posterior compartment of the forearm

4. A piece of steel sheeting caught a workman across the posterior surface of the arm at the level of the insertion of the deltoid. The wound went deep to the humerus and was accompanied by arterial bleeding. The medial intermuscular septum and the anterior compartment were not involved. Based on your anatomical knowledge of the area, select the correct statement(s) about this injury.

1. The profundus brachii artery was severed
2. He could not extend his interphalangeal joints (IP's) of his fingers
3. His hand was in the flexed position at the wrist (wrist drop)
4. He could not feel pin pricks in his little finger (dorsal or palmar surface)

ANATOMY EXAMINATION

- 2 -

Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

5. Select the correct statement(s) about the blood supply to the hand.
- ① The deep palmar arterial arch is deep to the tendons of flexor digitorum profundus
 - ② The dorsal metacarpal arteries are derived from the dorsal carpal arch and the perforating branches of the deep palmar arch
 - ③ The ulnar artery is usually the primary blood supply to the superficial palmar arch
 - ④ The deep palmar arch is connected to the superficial palmar arch by the palmar metacarpal arteries joining to common palmar digital arteries near the heads of the metacarpal bones
6. Select the correct statement(s) about the structures of the cubital fossa.
- ① The brachioradialis forms the lateral border of the fossa
 - ② The bicipital aponeurosis is not pierced during normal blood drawing from the median cubital vein
 - ③ The brachialis and supinator muscles form the floor of the fossa
 - ④ The ulnar nerve enters the fossa under the cover of (deep to) the pronator teres
7. An atherosclerotic plaque has slowly formed to cause stenosis (narrowing) in the distal brachial artery just proximal to its bifurcation in the cubital fossa. Select the most likely routes of collateral circulation.
- 1. Posterior humeral circumflex artery to profunda brachii artery
 - ② Superior ulnar collateral artery to posterior ulnar recurrent artery
 - ③ Anterior interosseous artery to radial recurrent artery
 - ④ Radial collateral artery to radial recurrent artery
8. The ulnar nerve was damaged by a deep laceration at the left wrist when a 17-year old male put his hand through a plate glass window. Select the correct statement(s) about the patient's symptoms.
- ① He can not adduct his ring finger and hold a piece of paper between his ring and middle fingers
 - ② The motor innervation to the flexor digiti minimi brevis and the 3rd and 4th lumbricals is lost so that the ring and little finger are hyperextended at the metacarpophalangeal (M-P) joints
 - ③ He is able to hold a toothpick between the pads of his thumb and index finger
 - ④ The middle and distal phalanges of the ring and little finger are flexed at the proximal interphalangeal joint (PIP's) and the distal interphalangeal joint (DIP's)

ANATOMY EXAMINATION

- 3 -

- Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

9. A 30-year old construction worker had a fifty-pound sack of concrete mix drop two stories and land on his right shoulder while working in the new physical rehabilitation floor at MCO. He suffered damage to the upper two roots of the brachial plexus. Select the correct statement(s) about his condition.

- A. ☒ 1. He would be unable to extend his hand at the wrist
☒ 2. He would be unable to abduct his arm at the shoulder due to loss of innervation to the deltoid and supraspinatus muscles
3. His forearm and hand would be pronated due to loss of innervation to the supinator and biceps brachii muscles
4. He would have no cutaneous sensation in his little finger

Questions 10 through 15.

For the following questions, select the one best answer or completion.

10. The radial artery is palpable in between the tendons of,
A. extensor pollicis brevis and abductor pollicis brevis
B. abductor pollicis longus and abductor pollicis brevis
C. abductor pollicis longus and flexor pollicis brevis
☒ D. extensor pollicis brevis and extensor pollicis longus
E. extensor carpi radialis brevis and extensor carpi radialis longus
11. Abduction of the thumb is done by muscles innervated by
A. median nerve
B. ulnar nerve
C. radial nerve
D. (A) and (B) are correct
☒ E. (A) and (C) are correct
12. Select the muscle(s) that insert into the dorsal expansion of the middle finger.
A. Second lumbrical
B. First palmar interosseous muscle (of 3 palmar interossei)
C. Second and third dorsal interosseous muscles
D. Second lumbrical, first palmar interosseous and second dorsal interosseous muscles
☒ E. (A) and (C) are correct

ANATOMY EXAMINATION

- 4 -

13. Which one of the following statements is NOT true?

- A. The musculocutaneous nerve innervates the muscles of the anterior compartment of the arm
- B. The median nerve lies between the brachialis and brachioradialis in the cubital fossa
- C. The anterior interosseous nerve is a branch of the median nerve
- D. The flexor carpi ulnaris is innervated by the ulnar nerve
- E. The extensor indicis is innervated by the posterior interosseous nerve, a continuation of the deep branch of the radial nerve

14. Which one of the following statements is NOT true?

- A. The ulnar bursa of the hand surrounds the tendons of the extensor digitorum and extensor indicis muscles
- B. The vincula (longus and brevis) are discrete mesotendons carrying blood to the tendons of the flexor digitorum superficialis and profundus muscles
- C. The flexor retinaculum forms the bottom or floor of the carpal tunnel
- D. The thenar cleft (space) is a potential space between the midpalmar compartment and the adductor compartment
- E. The fibrous digital sheath holds down the tendons of the flexor digitorum superficialis and profundus to increase efficiency and prevent "bowstringing"

15. Which one of the following statements is NOT true?

- A. The action of the pronator teres and pronator quadratus is lost when the median nerve is severed in the distal arm
- B. Supination of the hand can still occur when the median nerve is severed in the distal forearm
- C. The hand becomes adducted (ulnar flexed) at the wrist if the median nerve is severed in the distal arm
- D. The extensor carpi radialis longus and brevis, extensor carpi ulnaris and brachioradialis all act to extend the hand at the wrist
- E. The common flexor tendon arises from the medial epicondyle of the humerus and it (CFT) is the common origin of the superficial muscles of the flexor compartment of the forearm

ANATOMY EXAMINATION

- 5 -

Questions 16 through 20.

Answer the following questions by using the key outlined below.

- Answer Key:
- A. if only 1, 2, and 3 are correct
 - B. if only 1 and 3 are correct
 - C. if only 2 and 4 are correct
 - D. if only 4 is correct
 - E. if all are correct

16. Regarding sensory segments of the limbs and their derivatives,

- 1. The umbilicus is in the T10 dermatomal area
- 2. A dermatome is an area of skin supplied by a single spinal nerve and its associated spinal ganglia
- 3. Cutaneous innervation to the preaxial border of a limb is derived from more cephalic or cranial nerves than the postaxial border
- 4. Cutaneous nerve areas correspond to dermatomal patterns

17. Limb musculature

- 1. relies on spinal nerves to aid in the differentiation process
- 2. begins as mesenchymal condensations
- 3. is derived from somatic mesoderm
- 4. splits into flexor and extensor compartments

18. Limb defects

- 1. involving the long bones have been produced by thalidomide
- 2. are one of the most commonly occurring abnormalities
- 3. include a malformation known as syndactyly in which the mesenchyme between the prospective digits fails to undergo necrosis
- 4. always occur bilaterally

19. In limb rotation,

- 1. after rotation, the extensor muscles of the lower limb will come to lie ventrally
- 2. a 90° medial rotation of the lower limb brings the preaxial border medial
- 3. as limbs rotate, neuronal relationships are maintained
- 4. prior to rotation, the knees and elbows are directed ventrally

20. Regarding pattern formation,

- 1. a small group of cells at the posterior margin of the developing limb, called the zone of polarizing activity, controls the anterior-posterior patterning of adjacent tissue
- 2. the zone of polarizing activity of a human when transplanted to a similar position in the developing chick limb bud has no effect on development
- 3. full specification of position is not supplied all at once, but is built up from a series of items of positional information registered in the cell's "memory" at different times; i.e., positional information is supplied in quantal units
- 4. cells of the upper and lower limb mesenchyme are equivalent; they have the same positional values

ANATOMY EXAMINATION

- 6 -

Questions 21 through 36.

If the numbered statement is TRUE mark your answer A

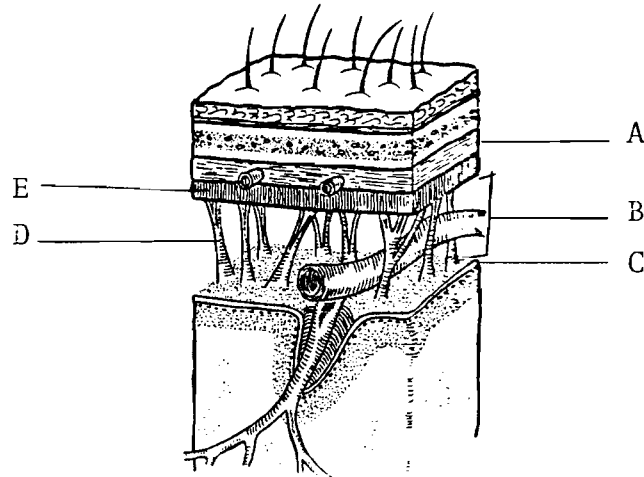
If the numbered statement is FALSE mark your answer B

21. In a radiograph, fat appears more radiolucent (darker) than air.
22. In an infant, the bladder is partly within the abdomen and partly within the "true" pelvis (pelvis minor).
23. The adductor tubercle and the sustentaculum tali are both medially located.
24. The ilium, pubis, and ischium meet in the acetabulum.
25. The joints between vertebral bodies and between vertebral laminae are of the same variety (symphyses) whereas the joints between superior and inferior articular processes are synovial joints.
26. The lateral longitudinal arch of the foot involves such bones as the calcaneus and cuboid as well as the spring ligament.
27. The "football triad" involves injury to the medial meniscus, the tibial collateral ligament and the cruciate ligament that attaches posteriorly on the tibia.
28. The ligament to the head of the femur contains a blood vessel in a large percentage of adults.
29. The sternal angle (of Louis) marks the location of the third rib.
30. The capitulum of the humerus is lateral.
31. A "Colles" fracture usually involves the distal ulna.
32. In keeping with development proceeding in a cephalocaudal direction, there are usually several carpal bones present at birth whereas there are no tarsal bones present.
33. Dislocation is more likely to occur at the sternoclavicular joint than at the acromioclavicular joint.
34. Dislocation of the head of the humerus is most likely to occur inferiorly.
35. A male sacrum is likely to be wide and long as compared with a female sacrum.
36. "Nursemaids' elbow" involves inflammation of the subcutaneous olecranon bursa.

ANATOMY EXAMINATION

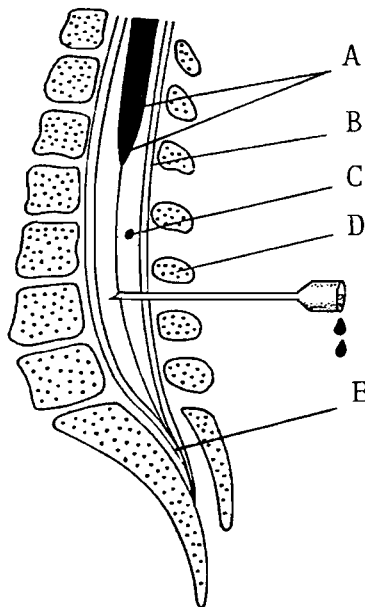
- 7 -

Questions 37 and 38 are in reference to the following diagram.



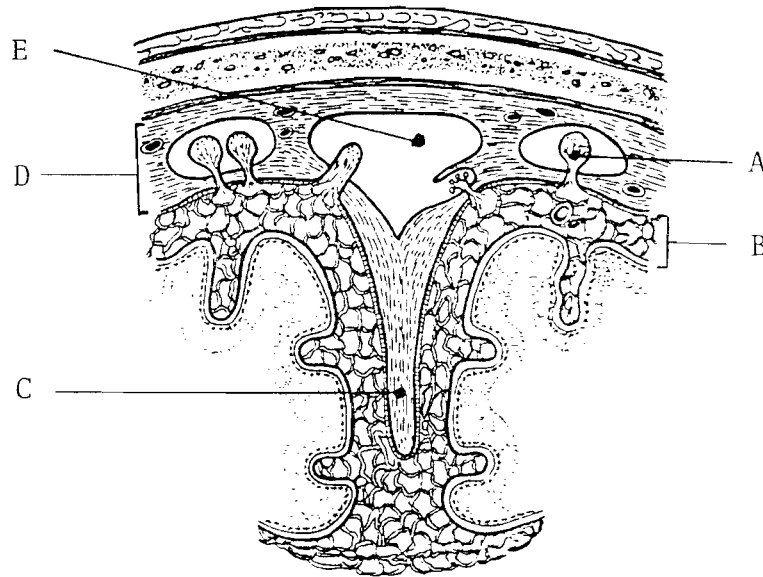
- A 37. This connective tissue membrane is the thickest, toughest and most durable of the meningeal layers.
38. These arachnoid trabeculae are bathed in CSF and are histologically similar to pia-arachnoid.

Questions 39 through 41 are in reference to the following diagram.



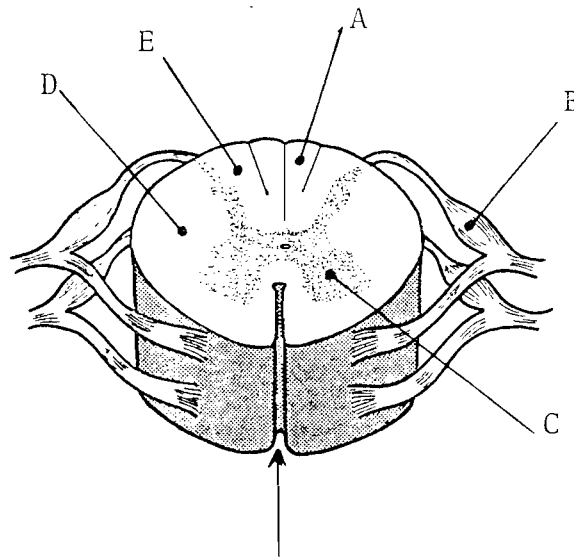
- A 39. This specific portion of the CNS is known as the conus medullaris.
- C 40. This specific region of the subarachnoid space is known as the lumbar cistern.
- E 41. This specific "ligament" is comprised of pia mater, arachnoid mater and dura mater.

Questions 42 through 45 are in reference to the following diagram.



42. This venous sinus is formed between the two layers of dura mater and is known as the superior sagittal sinus.
43. This reflection of dura mater is known as the falx cerebri.
44. This "space" is filled with CSF, arachnoid trabeculae and blood vessels.
45. This structure is known as an arachnoid villus.

Questions 46 through 49 are in reference to the following diagram.

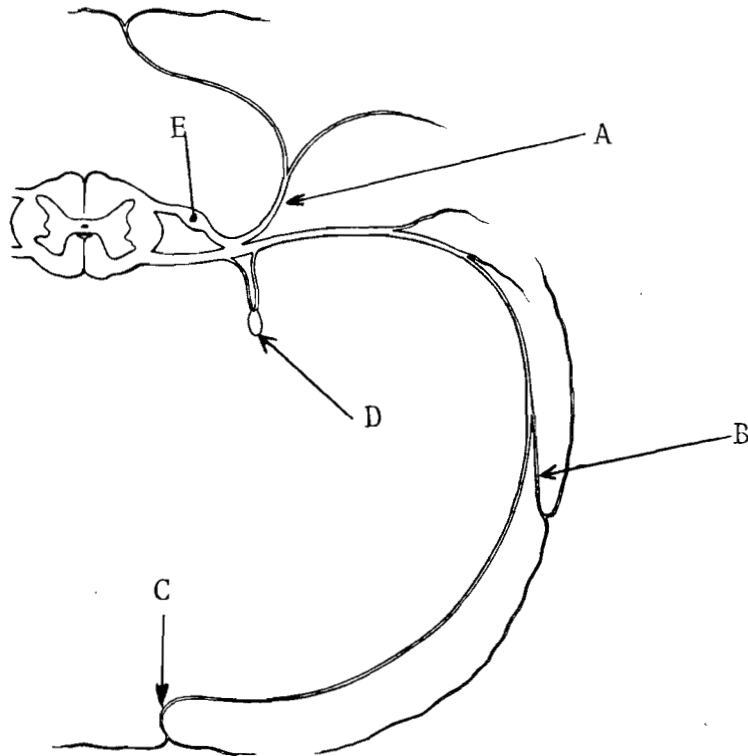


46. Large multipolar neurons dominate in this area of the spinal cord.
47. This ascending fiber tract is known as the fasciculus gracilis.
48. This area is known as the lateral funiculus and is comprised primarily of "white matter".
49. This region contains sensory neurons.

ANATOMY EXAMINATION

- 9 -

Questions 50 through 52 are in reference to the following diagram.

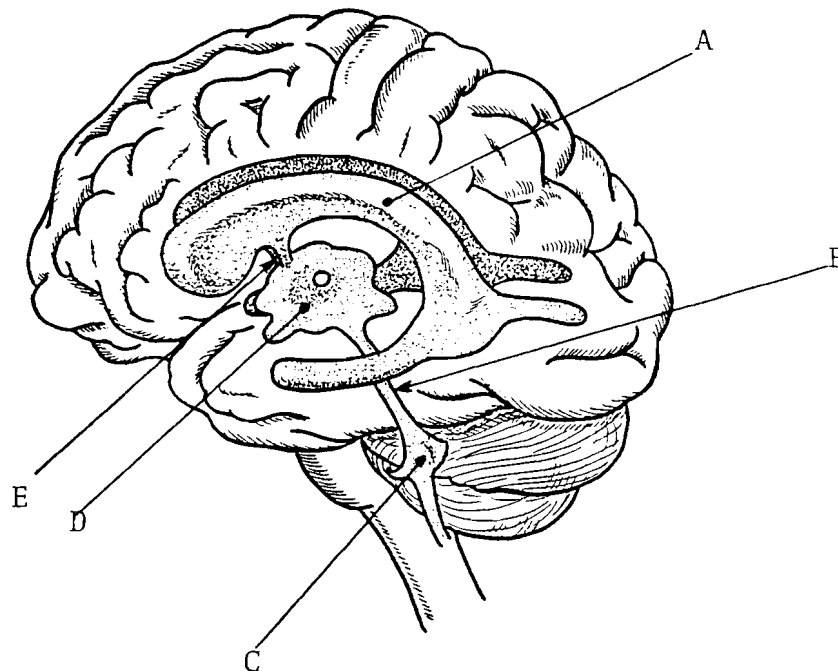


50. Cell bodies located in this area are primarily multipolar and possess a comparatively "scant" connective tissue capsule.
51. This region of the PNS provides segmental innervation to the deep back muscles and to the skin in the region; it conveys sensory, motor and autonomic nerve fibers.
52. This portion of the PNS is known as an "anterior cutaneous" nerve.

ANATOMY EXAMINATION

- 10 -

Questions 53 and 54 are in reference to the following diagram.



53. Known as the foramen of Munro or the interventricular foramina.

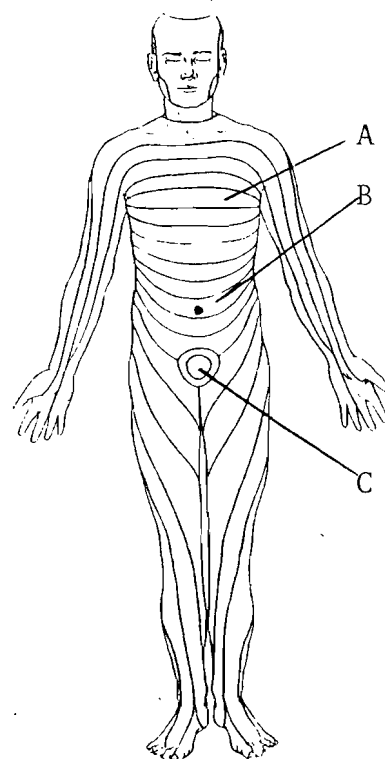
54. Known as the cerebral aqueduct or the aqueduct of Sylvius.

Questions 55 and 56 are in reference to the figure on the right.

55. This skin segment is designated as T-10 dermatome.

56. A skin area or segment as demonstrated in this figure is supplied by _____ (complete the statement).

- A. sensory fibers of a single spinal nerve only
- B. sensory fibers of a single principle spinal nerve with some overlapping by fibers of the two adjacent spinal nerves from adjacent segments or dermatomes
- C. motor fibers of a single spinal nerve
- D. autonomic fibers of a single spinal nerve
- E. none of the above statements are correct



ANATOMY EXAMINATION

- 11 -

Questions 57 through 61.

For the following questions, select the one best answer or completion.

57. The roots of the brachial plexus emerge between

- ☒ A. scalenus posterior and medius
- B. scalenus posterior and anterior
- C. scalenus medius and anterior
- D. levator scapulae and scalenus medius

58. All of the following statements about the scalenus anterior muscle are true EXCEPT

- A. Is anterior to roots of the brachial plexus
- B. Divides the subclavian artery into three parts
- ☒ C. Is innervated by muscular branches of cervical plexus
- D. Inserts on the second rib
- E. Originates from anterior tubercles of transverse processes of cervical vertebrae 3-6

59. Which one of the following statements is true?

- A. Thyrocervical trunk comes off the second part of the subclavian artery
- ☒ B. Costocervical trunk comes off the second part of the subclavian artery
- C. Superior thyroid artery is a branch of the thyrocervical trunk
- D. Suprascapular artery is often a branch of the costocervical trunk
- E. Internal thoracic artery is a branch of the third part of the subclavian artery

60. Which one of the following statements is true?

- A. The hypoglossal nerve carries fibers from C₂
- ☒ B. The hypoglossal nerve hooks around the occipital artery
- C. The superior laryngeal nerve is a branch of the hypoglossal nerve
- D. The superior laryngeal nerve runs upward between the trachea and esophagus
- E. The recurrent laryngeal nerve is a branch of the superior laryngeal nerve

61. Which nerve originates from the ventral ramus of C₂?

- A. Suboccipital
- ☒ B. Lesser occipital
- C. Greater occipital
- D. Both (B) and (C)
- E. None of the above

Questions 62 through 70.

Answer the following questions by using the key outlined below.

- Answer Key:
- A. if only 1, 2, and 3 are correct
 - B. if only 1 and 3 are correct
 - C. if only 2 and 4 are correct
 - D. if only 4 is correct
 - E. if all are correct

- 62. The contents of the carotid sheath include
 - 1. internal carotid artery
 - 2. superior root of ansa cervicalis
 - 3. vagus nerve
 - 4. external jugular vein
- 63. The spinal accessory nerve (C.N. XI)
 - 1. runs across levator scapulae which it innervates
 - 2. innervates trapezius muscle
 - 3. divides the anterior triangle into a carefree and careful area
 - 4. innervates sternocleidomastoid muscle
- 64. Divisions of the anterior triangle include
 - 1. submental triangle
 - 2. carotid triangle
 - 3. digastric triangle
 - 4. supraclavicular triangle
- 65. Which structure(s) cross the sternocleidomastoid muscle?
 - 1. Lesser occipital nerve
 - 2. Great auricular nerve
 - 3. External jugular vein
 - 4. Transverse cutaneous nerve of neck
- 66. The inferior belly of the omohyoid muscle
 - 1. is connected indirectly to the clavicle
 - 2. elevates the hyoid bone
 - 3. is innervated by the ansa cervicalis
 - 4. divides the anterior triangle into two subsequent triangles
- 67. The ansa cervicalis innervates
 - 1. stylohyoid
 - 2. thyrohyoid
 - 3. geniohyoid
 - 4. sternohyoid
- 68. Which of the following statements is (are) true?
 - 1. The ansa subclavious is a branch of the cervical plexus
 - 2. The cervical part of the sympathetic chain runs anterior to the prevertebral muscles
 - 3. The cervical part of the sympathetic chain runs anterior to the carotid sheath
 - 4. The inferior cervical sympathetic ganglion is often fused with the 1st thoracic ganglion

ANATOMY EXAMINATION

- 13 -

- Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

69. The superficial muscles of the back are supplied by

1. ventral roots of spinal nerves
- ②. spinal accessory nerve
3. dorsal rami of spinal nerves
- ④. ventral rami of spinal nerves

70. Which of the following is (are) true about the trapezius muscle?

- ①. It forms the posterior boundary of posterior triangle
2. It is pierced by the greater occipital nerve and occipital artery
- ③. It is supplied by the spinal accessory nerve from its deep aspect
4. It is surrounded by an investing layer of cervical fascia

Questions 71 through 73.

For the following questions, select the one best answer or completion.

71. All of the following are true about thoracolumbar fascia EXCEPT:

- A. It extends laterally from lumbar and sacral spines
- B. It forms the roof of the lumbar triangle
- C. The intertransverse ligament divides to form the anterior and middle layer of thoracolumbar fascia
- D. The posterior lamella divides and encloses the quadratus lumborum muscle
- ⑤. The posterior lamella gives origin to the latissimus dorsi muscle

72. The lateral boundary of the lumbar triangle is formed by

- A. latissimus dorsi muscle
- ⑥. external oblique muscle
- ⑦. serratus posterior muscle
- D. quadratus lumborum muscle
- E. posterior lamella of thoracolumbar fascia

ANATOMY EXAMINATION

- 14 -

73. A 38-year old woman is escorted to your office by a work supervisor from a factory two blocks away. The woman relates that she was, "Ran into by a ***!! fork-lift operator while on the job." Your examination of this patient reveals: 1) a loss of sensation on the dorsum of the left foot; 2) dorsiflexion against resistance is not possible; 3) inversion at the subtalar joint in the left limb. Your diagnosis is trauma to

- A. common peroneal nerve at the fibular neck
- B. deep peroneal nerve at the ankle
- C. deep peroneal nerve near its origin
- D. superficial peroneal nerve on the dorsum of the foot
- E. sciatic nerve - mid-thigh region

Questions 74 through 81.


Answer the following questions by using the key outlined below.

Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

74. Which muscle(s) is capable of producing flexion at one joint and extension at a second joint?

- 1. semimembraneous
- 2. rectus femoris
- 3. lumbricales of foot
- 4. long head of biceps femoris

75. Which muscle(s) has origin from calcaneus?

- 1. flexor hallucis brevis
- 2. quadratus plantae
- 3. adductor hallucis 
- 4. abductor hallucis

76. The following artery(ies) can be demonstrated in the posterior compartment of the leg.

- 1. anterior tibial
- 2. posterior tibial
- 3. peroneal
- 4. popliteal

77. Adductor magnus muscle

- 1. has partial origin from the ischial spine
- 2. gets nerve supply from femoral and obturator nerves
- 3. inserts on the medial condyle of the tibia
- 4. derives its primary blood supply from branches of the profunda femoris artery

ANATOMY EXAMINATION

- 15 -

- Answer Key: A. if only 1, 2, and 3 are correct
B. if only 1 and 3 are correct
C. if only 2 and 4 are correct
D. if only 4 is correct
E. if all are correct

78. Which muscle(s) produces no movement at the knee?

1. vastus medialis
2. sartorius
3. short head of biceps femoris
- ④. adductor magnus

79. The femoral sheath

- ①. is an extension into the thigh of fascia which lines the abdominopelvic cavity
2. contains three compartments; one each for femoral artery, vein and nerve
- ③. contains major lymphatic channels
4. has the saphenous opening on its anterior surface for the great saphenous vein

80. Which of the following can be found in the adductor (subsartorial; Hunter's) canal? *

1. nerve to vastus medialis
2. obturator nerve (posterior division)
- ③. saphenous nerve
4. femoral nerve

81. In the gluteal region, the sciatic nerve lies posterior to

1. obturator internus tendon
2. gemellus superior and inferior
- ③. quadratus femoris muscle
- ④. piriformis muscle

ANATOMY EXAMINATION

- 16 -

Questions 82 through 87.

For each numbered item, select the one heading most closely associated with it. A lettered heading may be used as an answer once, more than once, or not at all.

- A. Branches of femoral nerve
- B. Branches of tibial nerve
- C. Branches of deep peroneal nerve
- D. Branches of superficial peroneal nerve

- 82. Sensation along lateral margin of foot
- 83. Sensation along lateral side of first toe
- 84. Peroneus tertius muscle
- 85. Nail bed of middle toe
- 86. Flexor hallucis longus muscle
- 87. Pectineus muscle

Questions 88 through 91.

For each numbered item, indicate whether (A) or (B) is associated with it, or both of them or neither.

- A. Greater sciatic foramen
- B. Lesser sciatic foramen
- C. Both
- D. Neither

- 88. Tendon of obturator externus D
- 89. Inferior gluteal nerve A
- 90. Sacrospinus ligament C
- 91. Posterior femoral cutaneous nerve A

ANATOMY EXAMINATION

- 17 -

Questions 92 through 100.

For the following questions, select the one best answer or completion.

92. Which one of the following statements is correct?

- A. The scapular notch transmits the subscapular nerve but not the artery of the same name
- B. The triangular interval transmits a small branch of the radial nerve
- ☒ C. The axillary artery has its origin at the medial border of the first rib
- D. Pectoralis minor is innervated by the medial pectoral nerve
- E. Subscapularis passes anterior to the humerus to insert upon the greater tuberosity

93. Which one of the following statements is NOT correct?

- A. The point of insertion for the deltoid is the deltoid tuberosity
- ☒ B. The intertubercular sulcus provides a pathway for the tendon of the long head of triceps brachii
- C. The cephalic vein passes through the clavipectoral fascia
- D. The lateral pectoral nerve passes to pectoralis major medial to pectoralis minor
- E. Pectoralis minor can assist breathing under special circumstances

94. Of the following descriptive remarks concerning the posterior cord of the brachial plexus, which one is correct?

- A. It is composed of all the anterior divisions
- B. The nerves to teres major, teres minor, deltoid and rhomboideus major in the shoulder region arise from the posterior cord
- C. The posterior cord makes a major contribution to the median nerve
- ☒ D. Cutting this cord would greatly impair lateral rotation of the arm at the shoulder
- E. The name of the nerve derived from the posterior cord which innervates latissimus dorsi is the thoracodorsal nerve

95. Which one of the following terms does NOT describe a common motion of the shoulder girdle?

- ☒ A. Pronation
- B. Retraction
- C. Elevation
- D. Depression
- E. Forward rotation

ANATOMY EXAMINATION

- 18 -

96. The following remarks concern the anastomotic arrangement around the scapula. Which one is NOT correct?

- A. It is a network of vessels derived from the dorsal scapular, the suprascapular and the circumflex scapular arteries
- B. It allows continued flow to distal areas if one or another of its major vessels is blocked
- C. ☒ It commonly makes use of a branch of the ascending cervical artery as an alternate source of blood
- D. It commonly also is supplied by minor branches of several of the intercostal arteries
- E. One of the vessels, the circumflex scapular artery, is a branch which has as its origin, in terms of major arteries, the axillary artery

97. Which one of the following components of the brachial plexus would truly be located within the borders of the axilla?

- A. Roots
- B. Trunks
- C. ☒ Cords
- D. Divisions
- E. Origin of the subclavian nerve

98. Which of the following structures is NOT included in the posterior axillary wall?

- A. Latissimus dorsi
- B. Teres Major
- C. ☒ Pectoralis major
- D. Subscapularis

99. The ~~junction between the centrum and the neural arch~~ of a typical vertebra is found in the vertebral

- A. body
- B. pedicle
- C. lamina
- D. ☒ body-pedicle junction
- E. Pedicle-lamina junction

100. During normal walking (forward), the location of the center of gravity of the body is _____ relative to its location during relaxed standing.

- A. ☒ shifted anteriorly
- B. shifted posteriorly
- C. unchanged

ANATOMY EXAMINATION
- 19 -

Questions 101 through 107.

For each numbered item, indicate whether (A) or (B) is associated with it, or both of them or neither.

- A. Erector spinae muscle group
- B. Transversospinalis muscle group
- C. Both
- D. Neither

- D 101. Innervated by ventral primary rami of spinal nerves
- A 102. Tends to rotate the trunk ipsilaterally (same side) when contracting
- C 103. Actively resists extension of vertebral column

- A. Mantle zone of spinal cord
- B. Marginal zone of spinal cord
- C. Both
- D. Neither

- D 104. Contains cell bodies of neurons derived from neural crest
- D C 105. Contains functional dendrites of neurons derived from neural crest
- A 106. Contains nerve cell bodies of neurons derived from neural tube
- H 107. Postnatal size varies directly proportional to the peripheral area being innervated

ANATOMY EXAMINATION

- 20 -

Questions 108 and 109.

Answer the following questions by using the key outlined below.

- Answer Key:
- A. if only 1, 2, and 3 are correct
 - B. if only 1 and 3 are correct
 - C. if only 2 and 4 are correct
 - D. if only 4 is correct
 - E. if all are correct

108. Which of the following joints is (are) undergoing flexion during early to mid-stance phase of walking?

3.
 - ① hip joint
 - ② knee joint
 - ③ talocrural joint
 - 4. metatarsal and interphalangeal joints

109. Which of the following muscles should normally be active at the time of heel strike?

4.
 - ① gluteus medius muscle
 - ② erector spinae muscles
 - ③ quadriceps femoris muscle
 - 4. iliopsoas muscle

110. Which muscle(s) control the rate of passive dorsiflexion of the foot during the stance phase of the gait cycle?

- H.
 - ① soleus
 - ② peroneus longus
 - ③ gastrocnemius
 - 4. tibialis anterior

MEDICAL COLLEGE OF OHIO
STUDENT TEST ANALYSIS AND GRADING SYSTEM

TEST NAME: SEG I ANATOMY EXAM

DATE OF THE EXAM: 11-19-85

FACSIMILE ANSWER SHEET FOR: [REDACTED]

STU	COR				STU	COR				STU	COR				STU	COR			
NO	ANS	ANS	DEPT	TOPIC	NO	ANS	ANS	DEPT	TOPIC	NO	ANS	ANS	DEPT	TOPIC	NO	ANS	ANS	DEPT	TOPIC
1	*	D	D	ANA	29	*	B	B	ANA	57		A	C	ANA	84	*	C	C	ANA
2		B	A	ANA	30	*	A	A	ANA	58		C	D	ANA	85	*	B	B	ANA
3	*	C	C	ANA	31	*	B	B	ANA	59	*	B	B	ANA	86	*	B	B	ANA
4	*	B	BA	ANA	32	*	B	B	ANA	60	*	B	B	ANA	87	*	A	A	ANA
5	*	E	E	ANA	33	*	B	B	ANA	61	*	B	B	ANA	88	*	D	D	ANA
6	*	H	A	ANA	34	*	A	A	ANA	62	*	B	AB	ANA	89	*	A	A	ANA
7	*	C	C	ANA	35		A	B	ANA	63		E	C	ANA	90	*	C	C	ANA
8	*	E	E	ANA	36		A	B	ANA	64	*	A	A	ANA	91	*	A	A	ANA
9	*	A	A	ANA	37	*	A	A	ANA	65	*	E	E	ANA	92		C	D	ANA
10	*	D	D	ANA	38	*	D	D	ANA	66	*	B	B	ANA	93	*	B	B	ANA
11	*	E	E	ANA	39	*	A	A	ANA	67	*	D	D	ANA	94	*	E	E	ANA
12	*	E	E	ANA	40	*	C	C	ANA	68	*	C	C	ANA	95	*	A	A	ANA
13	*	B	D	ANA	41	*	E	E	ANA	69	*	C	C	ANA	96	*	C	CE	ANA
14	*	A	A	ANA	42	*	E	E	ANA	70		B	E	ANA	97	*	C	C	ANA
15		C	D	ANA	43	*	C	C	ANA	71		E	D	ANA	98	*	C	C	ANA
16	*	A	A	ANA	44	*	B	B	ANA	72	*	B	B	ANA	99		D	A	ANA
17	*	C	EC	ANA	45	*	A	A	ANA	73	*	A	A	ANA	100	*	A	A	ANA
18	*	A	BA	ANA	46	*	C	C	ANA	74	*	E	E	ANA	101	*	D	D	ANA
19		B	A	ANA	47	*	A	A	ANA	75		A	C	ANA	102	*	A	A	ANA
20		E	B	ANA	48	*	D	D	ANA	76	*	E	E	ANA	103	*	D	D	ANA
21	*	B	B	ANA	49	*	B	B	ANA	77	*	D	D	ANA	104	*	D	D	ANA
22	*	A	A	ANA	50	*	D	D	ANA	78	*	D	D	ANA	105		C	D	ANA
23	*	A	A	ANA	51	*	A	A	ANA	79	*	B	B	ANA	106	*	A	A	ANA
24	*	A	A	ANA	52	*	C	C	ANA	80	*	B	B	ANA	107	*	A	A	ANA
25		A	B	ANA	53	*	E	E	ANA	81		D	A	ANA	108		B	A	ANA
26	*	B	B	ANA	54	*	B	B	ANA	82		D	B	ANA	109	*	A	A	ANA
27	*	B	B	ANA	55	*	B	B	ANA	83	*	C	C	ANA	110	*	A	A	ANA
28	*	A	A	ANA	56	*	B	B	ANA										

TOTAL CORRECT 91

* INDICATES A CORRECT RESPONSE

- INDICATES A DELETED QUESTION or OMITTED RESPONSE

NUMBER 1931 ANALYSIS AND SERIES 1-10

103T EARLY SEC I SHELF 1240

DATE OF THE CASE: 11-17-05

7. *Chlorophyll a* (mg/g)

[illegible]

TOTAL CORRECT 60

* INDICATES A CORRECT RESPONSE

INDICATES A DELETED QUESTION or OMITTED RESPONSE